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NEW NEOTROPICAL SYRPHIDAE (DIPTERA)

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The following pages contain descriptions of a number of undescribed Syrphidae that have come to hand during the past few years. The types are in The American Museum of Natural History.

Microdon Meigen

Because of the difficulty in preparing a key to the species of *Microdon* from descriptions, the following table includes only those represented in the Museum Collection. The number of Neotropical species belonging to this genus must be large. It is worthy of note that very few of the described species are known from more than one or two specimens. The larvae live in the nests of ants and termites and some of them are of peculiar form. The North American *M. fulgens* Wiedemann has been included in the key because of its close relationship to a number of the species occurring in Brazil.

Table of South American Species

1.—Scutellum with a pair of distinct spines or very deeply emarginate and with two produced angulate projections ..... 13.
Scutellum without spines, even though somewhat deeply emarginate ..... 2.
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13.—Scutellum wholly reddish; abdomen broadly pale basally....14.
Scutellum dark in color (at least with strong metallic green tinge)....15.
14.—Apex of the fourth abdominal segment black haired....*angustus* Macquart.
Apex and broad sides of fourth abdominal segment with tawny hairs.
angustiventris Macquart.
15.—Antennae longer than the face....16.
Antennae conspicuously shorter than the face....*mus*, n. sp.
16.—Legs wholly yellowish....*nigrispinosus* Shannon.
At least the coxae brown or metallic....17.
17.—Scutellum with the lower border luteous or yellowish....18.
Scutellum wholly dark....21.
18.—Abdomen and legs mostly blackish....19.
Abdomen and legs mostly reddish....*bidens* Fabricius.
19.—Wings yellow, with fuscous apex and posterior border (British Guiana).
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Wings differently colored....20.
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normalis Curran.
Wings smoky, somewhat darker on the anterior half (British Guiana).
langi Curran.
21.—Apical cell with the apex angulate or sharply rounded....22.
Apical cross-vein almost straight and only slightly recurrent (Panama).
solitaria Curran.
22.—Scutellum partly or wholly yellowish pilose....24.
Scutellum wholly black pilose....23.
23.—Squamae white with brown border; thorax metallic blue or cyaneous (Brazil).
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24.—Legs wholly blackish....25.
At least the tibiae reddish yellow....26.
25.—Mesonotum almost wholly black pilose (N. America)....*fulgens* Wiedemann.
Mesonotum yellowish pilose....*barbiellinii*, n. sp.
26.—Femora metallic green; disc of mesonotum black-haired behind the suture.
marceli, n. sp.
Legs reddish yellow; mesonotum wholly pale-haired (Brazil).
splendens Wiedemann.

Microdon flukei, new species

An elongate, slender species, the abdomen with almost parallel sides. Length, 8 mm.

MALE.—Head shining blackish; face with yellowish-white pile; occipital pile brassy yellowish, that on the front black except near the vertex. Face and front narrow, the front widening from the anterior fourth to the vertex, the transverse groove broad; ocelli situated a little behind the middle of the front in a small triangle. Face almost evenly convex in profile, the cheeks linear. Antennae brown, much shorter than the face, the third segment black and shorter than the basal two combined; arista brown, slightly longer than the third segment. Eyes bare.

Thorax brownish or ferruginous, the mesonotum black except on the sides and posterior border; scutellum black on the disc. Hair brassy yellow, almost white on the sternopleura, subappressed. Margin of scutellum evenly rounded.

Legs reddish, the basal half of the tibiae yellow; posterior femora broadly brown in the middle except below. Hair pale yellowish, almost white on the basal half of the tibiae; black on the posterior femora, apical third of the posterior tibiae, upper and anterior surfaces of the anterior four femora and on the apical tarsal segments.

Wings cinereous hyaline, with weak brownish clouds along the veins. Apical and posterior cross-veins transverse, gently sinuous, the end of the apical cell almost angular posteriorly. Squamae brownish gray. Halteres reddish yellow.

Abdomen blackish; second segment with the base, broad apex and middle of the dorsum reddish; third segment with the broad apex reddish, the fourth more or less reddish on the apical fifth; genitalia reddish. Pile short and black, longer and yellowish on the base of the abdomen and on the reddish apices of the second and following segments, on the sides of the segments apically almost white. Venter with the intermediate segments reddish and with yellow pile, the pile otherwise black; genitalia with black hair.

TYPES.—Holotype, male, and paratype, male, Petropolis, Brazil, November, 1929.

Microdon hermetia, new species

Black, the second abdominal segment with translucent yellow spots; wings brown on the anterior third. Length, 16 mm.

MALE.—Head black, the face brownish with darker borders. Front narrow, strongly widening anteriorly and moderately widening to the vertex, the transverse depression broad, situated a little in front of the middle; ocellar triangle small, situated in the middle of the upper portion of the front; pile black, a band of white hairs across the depression and a patch at each side of the vertex. Occiput with thin whitish pollen above and below and with pale yellowish pile, the middle portion with black hair. Cheeks moderately wide. Face produced somewhat downward and only slightly convex; pile subappressed, white, the middle with black pile on the lower half ending in a nasal patch; cheeks bare in front. Antennae elongate, the third segment as long as the basal two combined, the second one-fourth as long as the first; hair black; arista brown, three-fourths as long as the third segment. Upper portion of the front thinly whitish pollinose. Eyes with short, sparse hair.

Thorax black, the pleura and a spot inside each humerus thinly white pollinose; hair short and black, a prescutellar band and patches inside the humeri rather silvery white; pleura and scutellum with white hair. Scutellum short and convex.

Legs black; tibiae brown, the tarsi becoming reddish apically; hair yellowish on the femora, some black hairs basally on the upper surface, white on the tibiae and tarsi.

Wings broadly brown in front, hyaline posteriorly; bend of fourth and fifth veins very broadly rounded. Squamae whitish with brown fringe. Halteres yellow with brown knob.

Abdomen elongate, the sides of the basal two segments parallel, the third slightly wider than the widened apex of the second; black, with the apex and genitalia brownish red; second segment with a pair of oblique, subtriangular, translucent yellow spots. Hair black, pale yellowish on the sides and on more than the apical half of the fourth segment; a band of short, dense whitish pile on the apex of the first segment. Venter brownish black, the second sternite translucent yellow, the third with a reddish apex; pile yellowish white, mostly black on the third sternite. Genitalia produced posteriorly on the right and bearing black hair.

HOLOTYPE.—Male, Barro Colorado Island, Canal Zone, December 23, 1928 (Curran).

In shape and color this species bears a strong superficial resemblance to some species of *Hermetia*.

Microdon beebei, new species

Black, with yellow markings; abdomen elongate and clavate; legs reddish. Length, 18 mm.

FEMALE.—Head rather badly damaged; front black with strong metallic green reflections and with appressed golden pile on at least the lower half. Occiput black, thinly pale pollinose, the pile apparently yellowish. Cheeks black, with yellow pile posteriorly. Face yellowish, moderately convex in profile, with appressed golden-yellow pile, the middle with some short black hairs. Antennae with the basal segment more than half as long as the face, black with almost the basal half reddish. Eyes bare.

Thorax black with metallic blue reflections, the humeri yellowish. Mesonotum with the sides, a broad prescutellar fascia and a geminate fascia extending across in front of the suture, its anterior band produced broadly forward in the middle, golden pilose, the remaining pile short and black. Scutellum metallic blue, its pile golden and appressed. Pleura with a broad band of golden-yellow pile extending downward in front of the wings and becoming whitish on the sternopleura.

Legs reddish; coxae black or brown; tibiae yellow on basal half or more; pile yellowish, appressed; posterior femora with short black spines on the apical half of the ventral surface.

Wings cinereous hyaline, the longitudinal veins on the apical half of the middle of the wing bordered with yellowish brown. Squamae white, with yellow border. Halteres reddish.

Abdomen brown with yellow markings, the first segment mostly metallic bluish above. Second segment long and narrow, as long as the third and fourth combined, narrowest near its apex, the apical three segments forming an oval club. Second segment with a pair of broad yellowish vittae extending the whole length, the third yellow with a median brown vitta on the basal three-fourths. Pile short and black; golden yellow on the first segment and broad apices of the second to fourth, on the anterior angles of the third and the whole of the fifth segment. Venter brown, the second and third sternites mostly yellow.

HOLOTYPE.—Female, Kartabo, British Guiana, October 8, 1921 (Wm. Beebe).

Because of the damaged condition of the head I have hesitated to describe this species. However, it is so very distinct from any of the known forms that there should be no difficulty in recognizing it, despite the incomplete description of the front and antennae.

Microdon lanei, new species

A small, ferruginous yellowish species, the mesonotum with three very broad brownish vittae. Length, about 9 mm.

FEMALE.—Head rusty yellowish, the front somewhat darker. Front about twice as long as wide, the sides gently diverging on the anterior half; pile short, black; depression very weak; ocelli situated near the middle of the upper section, the triangle small; a brown spot covers the ocellar triangle. Occiput and face yellow pilose, the cheeks linear. Face narrowest below, very gently convex on the upper three-fourths. Antennae reddish brown, the basal segment black, about as long as the face, the third segment as long as the basal two combined; arista not as long as third segment. Eyes with inconspicuous sparse hairs.

Mesonotum with three very broad brown vittae, leaving a pair of posteriorly tapering yellow vittae dorsocentrally. Pile yellowish, black on the black vittae and scutellum.

Legs reddish yellow; wholly pale pilose.

Wings with luteous tinge; apical cross-vein recurrent, almost straight. Squamae with black border and fringe. Halteres reddish.

Adbomen strongly constricted and somewhat laterally compressed beyond the second segment; pale pilose except on the broad base of the second segment, the pile very short.

HOLOTYPE.—Female, Jaquia, São Paulo, Brazil, November, 1929 (J. Lane), received from Dr. C. L. Fluke.

Microdon mus, new species

A small, moderately slender species; brownish and reddish, the abdomen widest at the apex of the second segment; scutellar spines long, approximate. Length, 7.5 mm.

MALE.—Head brown, the face luteous; pile yellowish, black on the lower section of the front. Front narrow, narrowest at the anterior third, the depression moderately strong; ocelli situated on the middle of the upper section. Face very gently convex, not strongly receding below, the pile moderately long. Antennae brownish red, shorter than the face, the third segment about as long as the basal two combined; arista not as long as the third segment. Eyes bare.

Thorax brownish red, the mesonotum black with the lateral and posterior margins reddish; pectus mostly brown or black. Pile rather dull brassy yellow. Scutellum brownish red, subtriangular in shape, with a pair of strong, approximate apical spines, the pile black except on the basal corners.

Legs reddish, the femora black or brown, with the apices broadly reddish; pile yellowish, white on the tibiae.

Wings cinereous, the veins narrowly bordered with brown, particularly those on the apical half of the wing; apical cross-vein recurrent, gently curved, the bend of

the fourth vein with an appendage. Squamae whitish, with yellow border and white fringe. Halteres yellow.

Abdomen brown, the sides and apices of the segments broadly reddish, the fourth segment mostly reddish brown. Pile black, yellowish white on the base, sides and broad apex; on the third and fourth segments extending triangularly inward at the base; on the apical fourth of the third segment the pale pile forms a broadly interrupted fascia; on the fifth it is in the form of large apical triangles that extend forward almost to the middle of the segment and are separated by a V-shaped wedge of black pile. Genitalia reddish. Venter mostly reddish, the pile wholly pale.

HOLOTYPE.—Male, Jaquia, São Paulo, Brazil, November, 1929 (J. Lane), received from Dr. C. L. Fluke.

Microdon nero, new species

Black; pile mostly black, partly golden yellow on head, thorax and abdomen. A robust species, the scutellum subrectangular. Length, 12 mm.

MALE.—Head black, the face and occiput with yellow pile, the occiput pale pollinose, with black hair on each side of the vertex. Front very narrow at the anterior third, moderately widening above and below, the depression strong; pile wholly black; ocellar triangle situated near the middle of the upper section. Cheeks moderately narrow, thinly gray pollinose and black pilose. Face shining, the sides subparallel, in profile strongly convex below, scarcely convex on upper third, thickly golden-yellow pilose, with a slender, bare median vitta and a few black hairs below the base of the antennae. Antennae with the first segment black, elongate, the others missing. Eyes with inconspicuous black pile.

Thorax black, the pleura in part brown; pile black, short and rather thick; mesonotum with appressed golden-yellow pile in front of the suture. Apex of scutellum concave, the widely separated spines strong.

Legs wholly black, with short, appressed black hair.

Wings brown, pale in the basal cells; apical cell angular apically. Squamae and knob of halteres black.

Abdomen shining black, with short, appressed black hair; a pair of broad, golden-yellow pilose vittae extend from the base of the third segment to the end of the abdomen but are interrupted at the base of the fourth segment; the broad apex of the abdomen bears similar pile and this extends forward inside the lateral margins and expands to form basal triangles on the fourth segment. Hair on genitalia and venter wholly black. The abdomen is widest at the apex of the second segment where it is considerably wider than the thorax.

HOLOTYPE.—Male, São Paulo, Brazil (Count A. A. Barbiellini).

Microdon barbiellinii, new species

Metallic blue, green and violaceous, the legs wholly black; scutellum subrectangular. Length, 8.5 mm.

MALE.—Head violaceous, pale yellow pilose, the front with black pile. Front narrow, strongly widening in front of and behind the depression which lies at the anterior third, the ocellar triangle situated at the middle of the upper section. Occiput mostly metallic green, thinly pollinose along the lower orbits. Cheeks moderately narrow. Face gently convex, more strongly so below, with subparallel sides. Antennae black, longer than the face, the first segment almost as long as the second

and third combined; arista shorter than the third segment. Eyes with very short, sparse black or brown pile.

Thorax violaceous, the pleura and scutellum largely blue; pile yellowish dorsally, black on the pleura; a weak, incomplete band of black hairs between the roots of the wings. Apex of scutellum transverse, the widely separated spines of medium size.

Legs black, the coxae and femora more or less violaceous, the pile wholly black.

Wings grayish; apical cell with the apex triangularly produced. Squamae whitish, with golden-yellow fringe. Halteres reddish yellow.

Abdomen metallic green; above with short, appressed black hair, on the base, sides and apex with longer, thick, subappressed yellowish pile; apex of the fourth segment more or less reddish, the genitalia wholly reddish. Venter violaceous with the apices of the segments reddish yellow, the pile black.

HOLOTYPE.—Male, São Paulo, Brazil, May, 1924 (Count A. A. Barbiellini), received from Dr. C. L. Fluke.

Microdon marceli, new species

Metallic green, the head and thorax sometimes blue; tibiae and tarsi yellow; scutellum subrectangular. Length, 8 to 10 mm.

MALE.—Head metallic green, the front sometimes bluish, the occiput grayish pollinose. Front narrow, widening anteriorly and posteriorly, the depression rather deep; pile black; ocelli situated slightly behind the middle of the upper section. Pile of the occiput and face pale yellowish. Face gently convex, more strongly so on the lower half, widest below. Antennae black, elongate, the first and third segments of equal length, the second one-fourth as long; arista shorter than the third segment. Eyes with inconspicuous sparse hairs.

Thorax sometimes quite bluish or violaceous above pale yellowish pilose the disc of the mesonotum black pilose behind the suture; scutellar pile all pale, the apex of the scutellum transverse, the spines strong.

Coxae and femora green; apices of the femora, the tibiae and tarsi reddish yellow; pile wholly yellowish.

Wings with pale brown tinge; apex of apical cell angularly produced. Squamae and halteres yellowish.

Abdomen with short appressed black pile dorsally, the first two segments, lateral margins and a large triangle covering the apical third of the fourth segment with longer, yellow pile, the pale pile expanding on the fourth segment to form a longitudinal basal triangle on each side. Genitalia and ventral incisures reddish yellow, the apex of the fourth segment sometimes partly reddish. Venter green, the pile wholly pale.

TYPES.—Holotype, male, and allotype, female, Chapada, Brazil (Williston collection).

Named in honor of Marcel Barbiellini, a constant companion of Count Barbiellini on his collecting trips in the vicinity of São Paulo.

VOLUCELLA GEOFFROY

Since it is necessary to describe a number of species in which the scutellum bears one or more depressed areas a revised key to this section of the genus is presented.

TABLE OF SPECIES HAVING SCUTELLAR DEPRESSIONS

1.—Scutellum with preapical depression....2.
Scutellum differently shaped, flattened to strongly convex....26.[1]
2.—Face metallic green....3.
Face not metallic green....6.
3.—Eyes with dense, short, thickened white pile; cheeks with yellow triangle; tarsi reddish....*viridis* Williston.
Eyes with normal cinereous pile; tarsi blackish....4.
4.—Cheeks wholly green; mesonotum wholly yellow-haired....*ernesta* Curran.
Cheeks with reddish or yellowish vitta in front....5.
5.—Fourth abdominal segment black pilose....*viridana* Townsend.
Fourth abdominal segment yellowish or tawny pilose....*ernestina* Curran.
6.—Bristles of the thorax yellow....7.
Bristles of the thorax black....17.
7.—Wings with sharply defined, triangular, apical brown spot. *tympanitis* Fabricius.
Wings without sharply defined apical spot....8.
8.—Squamae brown or with brown border....9.
Squamae yellowish....*pallens* Wiedemann.
9.—Mesonotum wholly pale pilose on posterior half....10.
Mesonotum broadly black pilose in front of scutellum....13.
10.—Disc of scutellum with coarse black hairs....*vaga* Wiedemann.
Disc of scutellum with pale hairs only....11.
11.—Cheeks and face separated by a very broad brownish vitta....12.
No brown vitta separating face and cheeks....*brevifacies* Curran.
12.—Mesonotum with the median third black; black vitta separating face and cheeks very wide and of uniform width....*chapadensis* Curran.
Mesonotum usually all ferruginous on the disc (if with black vitta it is partly linear); vitta separating face and cheeks usually narrow, sometimes broad above....*bequaerti*, n. sp.
13.—Broad sides of mesonotum yellow pilose on whole length....*brevivittata* Curran.
Mesonotum black pilose on full width posteriorly....14.
14.—Tibiae much darker than the femora....15.
Tibiae and femora orange, the tibiae not darkened but with black pile. *flukei*, n. sp.
15.—Fourth abdominal segment wholly black-haired....16.
Fourth abdominal segment with yellow pile on basal half....*musicana* Curran.
16.—Ventral scutellar fringe yellow....*lanei*, n. sp.
Ventral scutellar fringe black....*mocana*, n. sp.
17.—Scutellum without lateral flattened or depressed roughened areas....18.
Scutellum with lateral flattened or depressed roughened areas....27.
18.—Squamae, or at least the border and fringe, brown or black....20.
Squamae and fringe yellowish or reddish....19.
19.—Mesonotum wholly pale....*punctifera* Bigot.
Mesonotum broadly black in front and in the middle....*corumbensis* Curran.
20.—Face wholly black or with a median brown or black stripe....22.

[1] See key, Bull. A. M. N. H., LXVI, p. 379, 1934.

Face without a median dark vitta; legs brown, the basal segment of the posterior tarsi reddish; cheeks with a slender vitta; face produced strongly downward as a narrow cone; thorax rusty brown, the mesonotum violaceous on the disc; scutellum wholly black pilose.....21.

21.—Eyes black pilose.....*johnsoni* Curran.
Eyes white pilose.....*salti* Curran.

22.—Legs wholly black.....23.
Coxae yellow or the legs otherwise pale.....24.

23.—Sides of face very broadly yellow.....*vierecki* Curran.
Face black with a narrow whitish pollinose stripe on either side below.
cinctiventris Curran.

24.—Thorax wholly pale, the dorsum black-haired; scutellum with large, roundish black spot covering most of its surface.....*discalis* Curran.
Thorax largely dark or practically all pale-haired; scutellum differently colored.....25.

25.—Scutellum with yellow base and apex; facial vitta broad and reaching the antennae; front of female usually pale except above.....26.
Scutellum wholly violaceous; facial vitta narrow, not nearly reaching base of antennae; front black.....*fracta* Curran.

26.—Pteropleura black-haired; mesonotum narrowly yellow behind the suture.
musana Curran.
Pleura wholly yellow pilose; mesonotum very broadly yellow behind the suture.....*mus* Williston.

27.—Lateral depressions on scutellum as long as wide.....*tricincta* Bigot.
Lateral depressions on scutellum decidedly transverse.....28.

28.—Fourth abdominal segment entirely pale; ferruginous species with narrow black apices to the abdominal segments.....*chalybescens* Wiedemann.
Fourth segment black or the apical three segments almost unicolorous.....29.

29.—Fourth abdominal segment wholly white pilose.....30.
Fourth abdominal segment white pilose only on the broad sides and extreme apex.....*salti* Curran.

30.—Front of both sexes black or brown.....*deceptor* Curran.
Front yellowish.....*apicalis* Loew.

Volucella bequaerti, new species

A rather small yellowish-green or rusty reddish-yellow species, the disc of the mesonotum ferruginous; scutellum with deep, black preapical depression. Length, 6 to 9 mm.

FEMALE.—Head greenish yellow or pale rusty reddish yellow, the pile short, sparse and yellowish; a few black hairs at the vertex; posterior orbits cinereous pollinose, the occiput black in ground color except below. Front narrow above, moderately widening anteriorly, the ocellar triangle small. Face moderately produced downward, separated from the cheeks by a black or brown stripe that may be wide above; usually a brown spot below the eyes. Face deeply concave above, with a moderately prominent tubercle below. Antennae pale orange, the third segment broad basally, gently tapering to the rounded apex; arista mostly black, with long black rays above and below.

Thorax shining yellowish or greenish yellow, the disc of the mesonotum pale ferruginous; mesonotum sometimes with a black prescutellar spot in the middle and a black spot on the anterior border, these sometimes connected by a black line; posterior half of the pectus sometimes mostly black. Pile and bristles yellow, the former short. Scutellum with the deep preapical depression black or brown in color.

Legs reddish or greenish yellow, the tibiae and tarsi black or brown and black-haired; basal tarsal segment somewhat reddish; femora yellow-haired.

Wings hyaline basally, pale brownish on the apical half; stigma luteous, with brown basal spot.

Abdomen greenish or reddish yellow, the apices of the segments black except on the sides. The apical two or three segments are frequently stained in drying and may appear brownish, but the black fasciae are always distinct. Hair black on the dorsum, short and appressed, yellow on the two basal segments except on the broad apex of the second. Venter wholly pale.

TYPES.—Holotype, female, Moca, Guatalon, Guatemala, about 3000 ft., March, April, 1931 (J. Bequaert). Paratypes: two females, same data; three females, Santa Emilia, Pochuta, Guatemala, about 3000 ft., February, March, 1931 (J. Bequaert); female, Chiapas, Mexico, 2500–3000 ft., 1919 (L. Hotson); female, Cayuga, Guatemala, June, 1915 (Wm. Schaus).

V. bequaerti is very similar to *chapadensis* Curran but the face is narrower and a little more produced downward.

Volucella flukei, new species

Yellowish green; abdominal incisures bordered with brown; wings grayish on the apical half. Length, 10 mm.

FEMALE.—Head yellowish red, the face and front with strong green tinge; occiput mostly black in ground color. Front narrow, its sides gently diverging anteriorly; hair black, sparse. Posterior orbits white pollinose and yellow pilose. Cheeks separated from the face by a rather narrow brown line and with a short brown stripe below the eye. Face with yellow pile, deeply concave above, the tubercle prominent. Antennae orange, the third segment slightly tapering to the rounded apex; arista with black rays and apex. Eyes with black pile.

Thorax yellowish red, the dorsum rather greenish, the disc of the mesonotum more or less ferruginous, but the dark color does not reach the scutellum. Pile reddish yellow, black on the dorsum except on the sides in front of the wings, not abundant. Scutellum with yellowish bristles and black hair, the deep preapical depression black.

Legs reddish, the tibiae and tarsi with black hair, the apical two or three tarsal segments brown or black.

Wings hyaline, the apical half grayish, somewhat brownish along the veins; stigma luteous, with small black basal spot.

Abdomen yellowish green basally, the apical three segments rather brownish green, the incisures broadly brown. It is probable that many specimens will have the apical segments only slightly darker than the base of the abdomen, as there is frequently a considerable darkening due to the abdominal contents adhering to the upper integument after death. Pile black, yellow on the pale base and basal half of the venter; venter rusty reddish.

HOLOTYPE.—Female, Paraná, Brazil, received from Dr. C. L. Fluke.

Volucella lanei, new species

Similar to *flukei*, new species, but with brown tibiae and tarsi and yellow ventral scutellar fringe. Length, 9 mm.

MALE.—Head yellowish red, the face and front with strong green tinge; occiput mostly black. Frontal triangle small, pale yellowish pilose; vertical triangle brown, pale pilose, a few black hairs at the vertex and along the upper posterior orbits. Posterior orbits whitish pollinose and dull yellowish pilose. Cheeks separated from the face by a broad brown stripe; a rectangular brown spot below the eyes. Face deeply concave above, the tubercle moderately prominent; pile sparse, wholly pale. Antennae reddish yellow; third segment narrowed from base to middle, the apical half with almost parallel sides; arista with long brown rays. Eyes luteous pilose.

Thorax yellowish, the dorsum pale greenish, the disc of the mesonotum ferruginous except for a moderately wide prescutellar band; pectus black on the posterior half. Pile pale yellowish, black on the posterior fourth of the mesonotum and on the scutellum; bristles yellowish. Preapical scutellar depression deep and black in color, the ventral fringe yellow.

Legs reddish, the tibiae and tarsi reddish brown to brown, black pilose, the femora with yellowish pile except on the apices; tarsi becoming black apically.

Wings hyaline, the apical half tinged with brown; a basal spot in the stigmal cell, and small clouds on the furcation of the third vein and the anterior cross-vein brown. Squamae brown, white basally.

Abdomen greenish yellow (apple-green in life), the incisures broadly bordered with brown on the dorsum. Hair black, yellow basally and on the venter. Genitalia brown and brownish red, the apical sternites more or less brown.

FEMALE.—Front and face more evidently greenish and with black hairs on the upper half; mesonotum with a pair of incomplete, dark ferruginous vittae in the middle, lying on the pale ferruginous portion.

TYPES.—Holotype, male, Jaquia, São Paulo, Brazil, November, 1929 (J. Lane). Allotype, female, São Paulo, June 15, 1931 (H. Guradis). Received from Dr. C. L. Fluke, to whom the allotype has been returned.

Volucella mocana, new species

Related to the preceding species but the pile of the scutellum is wholly black and there is a suborbicular black spot on the mesonotum immediately in front of the scutellum. Length, 9 mm.

FEMALE.—Head reddish yellow, the occiput mostly black in ground color. Front with the sides gradually diverging from the vertex to the level of the antennae; pile black, yellow on the anterior fifth; ocellar triangle brown. Posterior orbits whitish pollinose and with yellowish pile. Cheeks separated from the face by a brown stripe, and with a brown spot below each eye. Face deeply concave above, the tubercle moderately prominent; hair wholly pale. Antennae reddish yellow; third segment gently tapering to the obtusely rounded apex; arista with long black hair. Eyes with rather sparse black pile.

Thorax reddish yellow, the dorsum shining; disc of mesonotum pale ferruginous; a small round black spot in the middle immediately in front of the scutellum. Pile yellowish, black on the scutellum and posterior fourth of the mesonotum. Pectus little darker than the pleura.

Legs reddish, the tibiae and tarsi black or brown, the basal tarsal segment more or less reddish. Pile yellow, black on the tibiae and tarsi.

Wings hyaline, grayish or luteous on the apical half; stigma with brown basal spot. Squamae brownish, with yellowish base.

Abdomen reddish yellow, with slight greenish tinge, the incisures bordered with black. Hair black, appressed, yellow on the base and venter. Venter wholly pale.

TYPES.—Holotype, female, Moca Guatalon, Guatemala, 3000 ft., March, April, 1931 (J. Bequaert). Paratypes: female, same data, and female, Pochuta, Guatemala, 3000 ft., February, March, 1931 (J. Bequaert).

ALLOGRAPTA OSTEN SACKEN

The following key separates the known American species belonging to this genus.

TABLE OF SPECIES

1.—Pteropleura black except just below the wing base.....4.
Pteropleura crossed by a yellow spot connecting the metapleural and sternopleural spots.....2.
2.—Oral margin strongly produced.....species incerta.
Oral margin not produced.....3.
3.—Face with a sharply defined black vitta (Galapagos).....*splendens* Thomson.
Face at most obscurely brownish in the middle.....*obliqua* Say.
4.—Disc of scutellum with a sharply defined large, posteriorly convex, black or dark brown spot.....13.
Disc of scutellum with at most a rusty reddish spot.....5.
5.—Metapleura with a pale yellow spot.....7.
Metapleura wholly dark in color.....6.
6.—Fifth abdominal segment with four yellow spots.....*micrura* Osten Sacken.
Fifth abdominal segment with arched fascia (Peru, Colombia).
Fazia fasciata Curran.
7.—Oral margin considerably more prominent than the antennal base.....8.
Oral margin at most slightly more prominent than the antennal base.....9.
8.—Fifth abdominal segment with four yellow spots.....*picticauda* Bigot.
Fifth abdominal segment with broad yellowish fascia.....*flukei*, n. sp.
9.—Cheeks with a black or brown band across the middle.....10.
Cheeks wholly yellow.....*pulchra* Shannon.
10.—Fourth abdominal segment with a geminate median yellow vitta.....12.
Fourth abdominal segment with pair of spots.....11.
11.—Pale spots on the fourth abdominal segment strongly oblique (Chile).
hortensis Philippi.
Pale spots on fourth segment almost parallel (Peru).....*piurana* Shannon.
12.—Mesonotum wholly shining.....*exotica* Wiedemann.
Mesonotum with four opaque brownish vittae (S. America)...*neotropica*, n. sp.
13.—Anterior oral margin much more prominent than the antennal base.....14.
Anterior oral margin not or only slightly more prominent than the antennal base.....16.
14.—Hair of the anterior tibiae mostly yellowish.....15.

Hair of the anterior tibiae all black.....*colombia* Curran.
15.—Disc of mesonotum unicolorous; fourth segment with vittae...*similis* Curran.
Disc of mesonotum with four darker vittae; fourth abdominal segment without vittae.....*alta*, n. sp.
16.—Squamae brown except at base; front of male black pilose.
fuscisquama Curran.
Squamae at most slightly infuscated; front of male almost all yellow pilose..17.
17.—Black median spots on the bases of the third and fourth abdominal segments triangular in outline.....*venusta* Curran.
These spots almost orbicular, a little longer than wide.....*cubana* Curran.

Fazia fasciata Curran

Allograpta fasciata CURRAN, 1932, Amer. Mus. Novit., No. 519, p. 4.

Despite the narrow abdomen I now feel that this species, described in *Allograpta*, should be placed in *Fazia* Shannon, because of the very widely separated antennae. In *fasciata* the antennae are more widely separated than in any of the other species now placed in *Fazia*. This genus is actually close to *Epistrophe* Walker, the only important difference being the distance separating the antennae. In *grossulariae* Meigen, the type of *Epistrophe*, the antennal pits are only narrowly separated whereas in *F. bullaephora* Shannon the pits are conspicuously separated. A study of a large amount of material from the Neotropical region will be necessary before any definite conclusions can be drawn in regard to the generic limits. This may result in the union of *Fazia* and *Epistrophe*, with the transfer to the same group of those species of *Allograpta* in which the face is produced, and the resurrection of *Stenosyrphus* Matsumura for almost all the species now placed in *Epistrophe*.

Allograpta flukei, new species

Oral margin produced; face with shining black vitta; abdomen yellow fasciate. Length, 11 mm.

MALE.—Frontal triangle bronze-black with the orbits very broadly orange, opaque or subopaque except anteriorly; pile black. Vertical triangle and occiput black in ground color, the latter cinereous pollinose; pile of the vertical triangle black, of the occiput yellow on the upper part and white on the lower two-thirds. Cheeks yellow with a large black spot below the eyes. Face strongly produced forward, the anterior oral margin lying well above the lower edge of the eyes; shining orange-yellow in color with a broad shining black median vitta extending over the whole length; tubercle strong but not more prominent than the oral margin; pile yellow, black above. Antennae brownish red, the third segment black on the upper half except at the base; arista black.

Thorax shining greenish black, the disc of the mesonotum bronzed and dull, with yellow markings as follows: the humeri, notopleura and posterior calli, a large spot on the posterior of the mesopleura and a spot on the metapleura, and indications of a pale spot on the upper part of the sternopleura. Pile pale tawny, a

broad band of black hair extending across the mesonotum between the bases of the wings but not quite reaching the lateral margins. Scutellum dull reddish yellow with the base and free border narrowly black; pile black, the lower marginal fringe reddish yellow.

Legs reddish yellow, the coxae, posterior femora and all the tarsi blackish, the posterior tibiae black with broad basal and median bands of reddish brown. Pile black, yellow posteriorly on about the basal half of the femora and on the whole posterior surface of the anterior tibiae. Middle femora brown on the basal half of the ventral surface.

Wings strongly tinged with brown, paler on the basal third. Squamae grayish white with brownish yellow fringe. Halteres reddish yellow.

First abdominal segment shining black with the sides very broadly yellow; second segment opaque black, with the margins shining, across the middle with a broadly interrupted dull yellow fascia, the outer ends of the spots truncate and conspicuously wider than the rounded inner ends; third segment similar but the spots are broadly united, forming an arched yellow band, the outer ends of the fascia convex in front. Fourth segment similar to the third but with the pale fascia somewhat more strongly arched and the segment mostly shining behind the yellow band. Fifth segment reddish yellow with the anterior corners and the broad apex shining black. Pile black; yellow on the first segment, basal two-thirds of the second and on the yellow fascia on the third except in the middle. Genitalia shining black. Venter reddish yellow, the pile wholly pale.

HOLOTYPE.—Male, Loma del Gato, Sierra del Cobre, Oriente, Cuba, September 24–30, 1935, 2600–3325 ft. (J. Acuna, S. C. Bruner, L. C. Scaramuzza), received from Dr. C. L. Fluke.

Allograpta neotropica, new species

Face with median black vitta; fourth abdominal segment with geminate median yellow stripe. Length, 8 to 9 mm.

MALE.—Frontal triangle dull, shining immediately above the antennae, black with the orbits broadly yellow; pile black. Vertical triangle dull blackish, black-haired. Occiput cinereous pollinose, yellow pilose above, white on the lower half or more. Cheeks yellow behind, black in front. Face yellow with a broad, median shining black vitta that narrows strongly below the tubercle; oral margin scarcely more prominent than the antennal base; tubercle long and low, the face concave above but convex immediately below the antennae; pile pale yellow except on the upper corners. Antennae reddish, the third segment black on about the upper half, the basal segments brown above.

Thorax shining blackish green; mesonotum dulled and with four opaque dark vittae that unite immediately before the scutellum; with yellow markings as follows: a broad stripe extending from the humeri to the suture, the posterior border of the mesopleura, the upper border of the sternopleura, a large spot on the metapleura and the posterior calli. Pile tawny. Scutellum dull yellow, the disc with a more or less distinct rust-colored spot; pile, including the ventral fringe, black.

Legs reddish yellow; coxae brown; posterior femora with the apical half or slightly more black, the apex reddish; posterior tibiae black with broad basal and median bands of reddish; tarsi all blackish. Pile black, yellow on the anterior surface of the tibiae and each femur with a few pale hairs basally.

Wings cinereous hyaline. Squamae yellow with the inner third and upper lobe brown. Halteres reddish yellow.

First abdominal segment yellow with a transverse blackish spot toward either side. Second segment dull black with the anterior fourth and broad apex somewhat shining, across the middle with a broadly interrupted reddish yellow fascia formed by triangular spots that extend over the lateral margins in their full width. Third segment black with the base, apex and lateral margins shining; the yellow fascia is strongly arched although only gently convex in front toward the middle, its posterior border limited by the more or less triangular black portion. Fourth segment black with a pair of median yellow vittae and oblique lateral stripes, the latter broadly connected with the vittae in front, the yellow markings broadly separated from the posterior border of the segment. Fifth segment black with yellow apex and two pairs of more or less triangular yellow vittae that do not reach the posterior or lateral margins. The fasciae on the third and fourth segments are narrowly separated from the lateral margins. Pile black, yellow on the first segment, basal two-thirds of the second and on the pale fascia on the third. Genitalia shining black. Venter reddish, pale pilose.

FEMALE.—Front opaque black, with the anterior border and upper fifth shining; sides broadly yellow on the lower two-thirds, the upper ends of the stripes rounded; pile black. All the femora broadly pale pilose basally. First abdominal segment sometimes with only the broad sides yellow, the yellow fascia on the second segment entire although slightly constricted in the middle; fascia on the third segment narrow and of almost uniform width; markings on fourth and fifth segments almost as in the male.

TYPES.—Holotype, male, Popayan, Colombia, February 14, 1935 (H. F. Schwarz). Allotype, female, between Queremal and Buenaventura, Colombia, February 3, 1935 (James Aranibar). Paratypes: female, Popayan, February 14 (H. F. Schwarz); male and two females, São Paulo, Brazil, November, 1933; three females, November, 1929; and male and female, January 17, 23, 1936 (F. Lane).

Allograpta alta, new species

Face produced below, with broad median black vitta; fourth abdominal segment fasciate; wings light brownish. Length 10 mm.

MALE.—Frontal triangle greenish black, with the orbits very broadly dark orange, shining in front, opaque above; pile black. Vertical triangle bronze-black, black pilose. Occiput cinereous pollinose and yellow pilose, the pollen and pile becoming white on the lower half. Cheeks mostly black immediately below the eye. Face shining dark yellowish, with an entire, shining greenish-black median vitta; oral margin strongly oblique, its anterior end lying well above the lower edge of the eyes and fully as prominent as the conspicuous tubercle; pile mostly black. Antennae brown, the third segment reddish on the lower half.

Thorax shining greenish black, the pleura thinly cinereous pollinose, the mesonotum dulled and with five rather obscure darker vittae. Yellow markings as follows: a broad lateral stripe in front of the suture, posterior calli, an obscure spot posteriorly on the mesopleura, a small triangle on the pteropleura and a larger triangle above the halteres. Pile reddish yellow, some black hair on the posterior calli. Scutellum dull orange with a large, hemispherical brown spot on the disc, the pile, including the ventral fringe, black.

Legs blackish, the broad apices of the femora, basal fourth of the posterior four tibiae, the whole of the anterior pair and the apical segment of the anterior four tarsi reddish. Pile black, pale on the coxae.

Wings strongly tinged with brown. Squamae and halteres reddish yellow.

Abdomen dull black with the sides and apices of the segments shining, crossed by three reddish-yellow fasciae, the fifth segment with four spots. First segment wholly shining, the sides broadly yellowish. Pale fascia on the second segment extending across the middle, narrowly interrupted, the inner ends of the spots more or less rounded, the fascia extending over the lateral margins in almost its full width, narrow and gradually narrowing toward the middle of the segment. The fascia on the third segment is gently arched and lies almost wholly before the middle of the segment, the outer ends strongly convex in front, the base of the segment narrowly shining; in the middle with a small spur of yellow projecting posteriorly from the pale fascia. Markings of the fourth segment similar to those on the third but the yellow fascia is bidentate in the middle. Fifth segment with pair of subtriangular pale basal spots in the middle and with broad, oblique sublateral stripes that widen posteriorly, all of the spots limited to the basal two-thirds of the segment. Pile black, yellow on the first segment and anterior two-thirds of the second. Yellow fasciae on third and fourth segments well separated from the lateral margins. Venter reddish yellow and pale pilose. Genitalia shining black.

HOLOTYPE.—Male, Popayan, Colombia, February 14, 1935, 7000 to 7800 ft. (H. F. Schwarz).

BACCHA FABRICIUS

The following species is of more than usual interest because of its close relationship to *bigoti* Austen. It is somewhat brighter in appearance and has a larger brown cloud over the middle of the wing.

Baccha lanei, new species

Related to *bigoti* Austen but the tibiae are not whitish yellow basally. Length, 12 to 13 mm.

MALE.—Head black in ground color; face except obscurely in the middle, broad sides of the frontal triangle and the occiput cinereous-white pollinose; occipital cilia and facial pile yellow, the upper cilia and frontal and vertical pile black. Face without distinct tubercle, very gently convex below the middle. Antennae reddish yellow the third segment brown on the upper border and apex; arista brownish.

Thorax shining black, the pleura and sides of the mesonotum brownish red or rather cupreous; pile very short and black, yellowish on the mesopleura, on a large area immediately in front of the scutellum and on the scutellum, the scutellum with longer pile and with long ventral fringe.

Legs brown or reddish brown, the femora becoming reddish or reddish yellow apically; tibiae with the broad base and apex reddish yellow, the anterior four sometimes with only pale brownish bands; tarsi wholly reddish yellow. Pile on femora and posterior tibiae black, moderately long on the femora; anterior four tibiae with extremely short hair and with whitish sheen in some lights.

Wings with luteous tinge, the subcostal cell, a triangle extending over the crossveins and a subrectangular spot before the apex of the wing dark brown; alula small.

Abdomen shining blackish, the second segment dull reddish, the apex becoming brown; base of third segment broadly reddish except in the middle. Pile black, longer and yellowish on the base of the abdomen. Abdomen slender, rather gently broadened on the apical half, but conspicuously narrower than in *bigoti*.

TYPES.—Holotype, male, and two paratypes, males, District of São Paulo, C. de Jordão, January 22, 1936 (F. Lane).